

CLAIMS

I claim:

1. An assembly for use with hot chamber die casting comprising a gooseneck assembly having a channel extending therethrough,
5 wherein the gooseneck assembly has an exterior surface, an interior surface and a bottom;
wherein the interior surface defines the channel extending therethrough;
a plunger matingly engaging the channel;
10 a bottom intake port located in the bottom of the gooseneck wherein the bottom port includes a passageway extending from the exterior surface to the interior surface of the gooseneck; and
a plug assembly housed by the bottom intake port; wherein the passageway of the bottom port is open when the plug assembly is in an upper
15 position and the passageway is closed when the plug assembly is in a lower position.
2. An assembly according to claim 1 wherein the plug assembly includes an interior plug and a shaft wherein the interior plug is adjacent the
20 interior surface of the bottom of the gooseneck and wherein the passageway of the bottom port houses the shaft of the plug assembly.
3. An assembly according to claim 2 wherein the shaft of the plug assembly extends beyond the exterior surface of the bottom of the
25 gooseneck.
4. An assembly according to claim 2 wherein the plug assembly includes an exterior plug attached to the shaft adjacent the exterior surface of the bottom of the gooseneck.

5. An assembly according to claim 4 wherein the exterior plug of the assembly includes at least one aperture therethrough.

6. An assembly according to claim 4 wherein the exterior plug of
5 the assembly includes a plurality of apertures therethrough.

7. An assembly according to claim 1 including molten metal reservoir containing molten metal wherein the gooseneck assembly is partially submerged in the molten metal of the reservoir.

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8. An assembly according to claim 2 wherein the interior surface of the gooseneck assembly includes a recess adjacent the passageway of the bottom port and wherein the recess houses the interior plug when the plug is in a lower position.

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9. An assembly according to claim 1 wherein the plug assembly is a ball bearing and wherein the interior surface of the gooseneck assembly includes a recess adjacent the passageway of the bottom port wherein the recess houses the ball bearing when the ball bearing is in a lower position.

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10. An assembly according to claim 9 wherein the plunger has a bottom surface, wherein the bottom surface has a recess and wherein the recess of the plunger houses the ball bearing when the ball bearing is in an upward position.

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11. An assembly according to claim 1 wherein a sleeve lines the interior surface defining the channel extending through the gooseneck.

12. An assembly according to claim 11 wherein the sleeve has a
30 bottom, wherein the bottom of the sleeve has a bottom intake port and

wherein the port of the bottom of the sleeve includes a passageway extending from the exterior surface to the interior of the gooseneck; and

- 5 wherein the plug assembly is housed by the bottom intake port of the sleeve and wherein the passageway of the bottom port of the sleeve is open when the plug assembly is in an upper position and the passageway is closed when the plug assembly is in a lower position.

10 13. An assembly according to claim 12 wherein the plug assembly includes an exterior plug attached to the shaft adjacent the exterior surface of the bottom of the gooseneck, wherein the exterior plug is a strainer.

14. A method for hot chamber die casting comprising the steps of:
15 providing a gooseneck assembly having a channel extending therethrough, wherein the gooseneck assembly has an exterior surface, an interior surface and a bottom;

providing a plunger matingly engaging the chamber,
providing a bottom intake port having a passageway in the bottom of the gooseneck assembly extending from the exterior surface to the interior surface of the bottom of the gooseneck assembly,

20 providing a plug assembly adjacent the bottom port,
causing the plunger to move in an upward direction and simultaneously causing the plug assembly to move upwardly and open the passageway of the bottom port.

25 15. A method according to claim 14 including the steps of:
causing the plunger to move in a downward direction and simultaneously causing the plug assembly to move in a downwardly direction closing the passageway of the bottom port.

30 16. A method according to claim 15 including the steps of:
providing a molten metal reservoir containing molten metal; and

partially submerging the bottom of the gooseneck assembly in the molten metal of the reservoir.

17. A method according to claim 16 wherein the step of moving the
5 plug assembly in a downward direction seals off the chamber from the reservoir.

18. A method according to claim 17 including the steps of continuing to move the plunger in downwardly direction, forcing the molten
10 metal in the cylinder through the channel of the gooseneck, through a nozzle seal and through a nozzle into a die cavity, filling the die cavity and forming a cast part in the die cavity.

19. A method according to claim 14 wherein the step of causing the
15 plunger to move in an upward direction creates a vacuum that pulls the plug assembly upward.

20. A method according to claim 16 wherein the step of causing the plunger to move in an upward direction creates a vacuum that pulls the plug
20 assembly upward and

wherein the vacuum also pulls molten metal from the reservoir through the bottom intake port into the chamber.

21. A method according to claim 20 wherein the molten metal in the
25 reservoir has a weight that creates a head of pressure wherein the head of pressure pushes molten metal from the reservoir through the bottom intake port into the chamber when the plug assembly moves upwardly and opens the passageway of the bottom intake port.

22. A method according to claim 14 including including the step of lining the interior surface defining the channel through the gooseneck with a sleeve.

5 23. A method according to claim 22 wherein the sleeve has a bottom and including the step of providing a bottom intake port in the bottom of the sleeve.

10 24. A method according to claim 23 including the step of providing the bottom intake port of the sleeve with a passageway extending from the surface to the interior of the gooseneck.

25. A method according to claim 24 including the step of the bottom intake port of the sleeve housing the plug assembly.

15 26. A method according to claim 25 including the step of providing the plug assembly with an exterior plug wherein the exterior plug is a strainer.

20 27. A method according to claim 26 including the step of straining molten metal entering the gooseneck through the strainer.